

CLAIMS

1. A smartcard for use with a receiver of encrypted broadcast signals, the smartcard comprising:

5 a microprocessor for enabling or controlling decryption of said signals; and  
a memory coupled to said microprocessor;

10 said microprocessor being adapted to enable or control the individual decryption of a plurality of such signals from respective broadcast suppliers of such signals by means of respective dynamically created zones in said memory, said dynamically created zones each being arranged to store decryption data associated with a respective one of said broadcast suppliers.

15 2. A smartcard as claimed in Claim 1, further comprising an identifier and at least one secret decryption key associated with a respective one of said broadcast suppliers, said identifier and the or each key being stored in one of said dynamically created zones and being arranged to decrypt broadcast signals having an identity corresponding to that identifier and encrypted using an encryption key corresponding to that decryption key.

20 3. A smartcard as claimed in Claim 2, further comprising for each zone a stored group identifier and a further identifier which identifies it within that group and is arranged to decrypt broadcast signals having an identity corresponding to the stored group identifier.

25 4. A smartcard as claimed in any preceding claim, said smartcard being arranged to maintain a first series of memory zones containing the identities of the respective broadcast suppliers and a second series of dynamically created memory zones, the memory zones in the second series each being labelled with the identity of a broadcast supplier and containing data including said decryption data used for the handling of received broadcast signals from that supplier, a plurality of memory zones in the second series having a common identity label and containing different classes of data relating to the handling of received broadcast signals from that broadcast supplier.

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5. A smartcard as claimed in Claim 4, said smartcard being arranged to create dynamically the memory zones of said first series.

6. A smartcard as claimed in any preceding claim wherein the dynamically created memory zones are continuous.

5 7. A smartcard as claimed in any preceding claim, further comprising a management memory zone arranged to store data for controlling the dynamic creation of said dynamically created zones.

10 8. A smartcard as claimed in any preceding claim, wherein one of said dynamically created zones contains rights data indicating a particular selection of broadcast items broadcast by a broadcast supplier, which the user of the smartcard is entitled to decrypt, the smartcard being arranged to utilise said rights data to decrypt items broadcast by that supplier.

15 9. A smartcard as claimed in any preceding claim, wherein a transaction memory zone is defined in the smartcard in addition to said dynamically created zones and contains further rights data concerning items broadcast by a broadcast supplier which a user of the smartcard is entitled to decrypt only in response to a transaction output signal which can be generated by the smartcard under the control of the user.

20 10. A smartcard as claimed in Claim 9, further comprising a counter for counting the number of occasions on which an item is broadcast following the output of a said transaction output signal and wherein the smartcard is arranged to gate the decryption of that item in dependence upon the count value reached by said counter.

11. A receiver/decoder for use with a smartcard as claimed in any preceding claim, the receiver/decoder comprising a smartcard reader and being arranged to decrypt broadcast encrypted signals under the control of the subscriber smartcard.

25 12. A receiver/decoder as claimed in Claim 11, said receiver/decoder being

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arranged to decrypt encrypted broadcast video and/or audio signals and to generate and corresponding video and/or audio output.

13. A receiver/decoder as claimed in Claim 11 or 12, said receiver/decoder having a relatively high bandwidth input port for receiving said encrypted broadcast signals and a relatively low bandwidth output port arranged to transmit output control signals back to a broadcast transmitter.

14. A receiver/decoder as claimed in any of claims 11 to 13, said receiver/decoder containing a stored identifier and is arranged to work only with a smartcard having a corresponding stored identifier.

15. Apparatus for broadcasting encrypted signals to receiver/decoders, the apparatus comprising means for generating two or more classes of broadcast control signals, wherein each class of such control signals includes receiver/decoder ID data for selectively enabling receiver/decoders having a corresponding ID to respond to such a class of control signals, said receiver/decoder ID data including group ID data for enabling one or more groups of receiver/decoders all to respond to a common class of such control signals, the apparatus being provided with database means which is arranged to distribute dynamically individual receiver/decoders between different ID groups in response to input information.

16. Apparatus as claimed in Claim 15, wherein said database means is responsive to signals received from the receiver/decoders to change the distribution of receiver/decoders between groups.

17. Apparatus according to Claim 15 or 16, said apparatus being arranged to broadcast control signals for changing the distribution of receiver/decoders between groups in response to said input information.

18. Apparatus according to any of Claims 15 to 17, wherein different classes of control signals enable the decryption of different parts of a broadcast encrypted data

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stream.

19. Apparatus according to any of Claims 15 to 18, wherein said input information includes payment information.

20. Apparatus according to Claim 19, wherein said classes of control signals include classes which control subscription to decrypt encrypted broadcast signals from different broadcast suppliers.

21. Apparatus according to Claim 20 or 21, wherein said classes of control signals include classes which control purchase of the right to decrypt broadcast encrypted data signals in different time frames.

22. Apparatus according to any of Claims 15 to 21, wherein said encrypted broadcast signals are video and/or audio signals.

23. Apparatus according to any of Claims 15 to 22, wherein the groups have up to 256 members.

24. Apparatus according to any of Claims 15 to 23, said apparatus being arranged to transmit said encrypted data signals to a satellite in orbit.

25. A receiver/decoder for receiving encrypted broadcast signals, the receiver/decoder comprising a group ID and being responsive to a class of broadcast control signals having a corresponding ID to said group ID, the receiver/decoder being arranged to change its group ID in response to a further control signal.

26. A receiver/decoder according to Claim 25, wherein said further control signal comprises a broadcast signal, said broadcast signal and said encrypted broadcast signals being arranged to be received by said receiver/decoder.

27. A receiver/decoder according to Claim 25 or 26, wherein said group ID is

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recorded in a smartcard removably inserted in the receiver/decoder.

28. A receiver/decoder according to any of Claims 25 to 27, wherein said encrypted broadcast signals are video and/or audio signals.

29. A system for broadcasting and receiving digital data signals comprising apparatus as claimed in any of Claims 15 to 24 in conjunction with a receiver/decoder as claimed in any of Claims 25 to 28.

30. A method of broadcasting encrypted signals to receiver/decoders, the method comprising generating two or more classes of broadcast control signals, each class of such signals including receiver/decoder ID data for selectively enabling receivers/decoders having a corresponding ID to respond to such a class of control signals, and distributing dynamically individual receiver/decoders between different ID groups in response to input information.

31. A method according to Claim 30 wherein said input information includes payment information and said classes of control signals enable the receiver/decoders to selectively decrypt portions of an encrypted broadcast video and/or audio stream.

32. Apparatus for broadcasting encrypted signals to receiver/decoders, the apparatus comprising means for generating control signals for controlling or enabling the decryption of said encrypted signals, means for associating control signals with respective program transmissions within said broadcast signals, the associating means comprising means for generating a signal identifying each transmission in a series of transmissions of the same program.

33. Apparatus according to Claim 32, further comprising means for generating a signal for setting a limit at the receiver/decoders on the number of transmissions in said series which can be decrypted.

34. Apparatus according to Claim 33, said apparatus being responsive to an input

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signal from a receiver/decoder to vary said limit.

35. Apparatus according to any of Claims 32 to 34, said apparatus being arranged to transmit said video and/or audio stream to a satellite in orbit.

36. A receiver/decoder for receiving and decrypting broadcast signals in a Pay Per View (PPV) mode, the receiver/decoder comprising means for detecting control signals which enable or control the decryption of particular program transmissions within said broadcast signals, said control signals including information identifying each transmission in a series of transmissions of the same program, and limiting means coupled to said detecting means for limiting the number of transmissions in said series which can be decrypted.

37. A receiver/decoder according to Claim 36, wherein said limiting means comprises a counter arranged to be incremented or decremented towards a stored limit value in response to each successive viewing of a transmission within said series.

38. A receiver/decoder according to Claim 37, further comprising means for adjusting said limit value in response to a received broadcast signal.

39. A receiver/decoder according to any of Claims 36 to 38, wherein said limiting means comprises a smartcard removably inserted in the receiver/decoder.

40. A receiver/decoder for receiving and decrypting encrypted broadcast signals, the receiver/decoder comprising:

- 20 a smartcard reader;
- a processor coupled to the smartcard reader and arranged to decrypt said signals in dependence upon an output from the smartcard;
- memory means containing a stored ID of the receiver/decoder;
- means for comparing said stored ID with an ID of a smartcard read by the
- 25 smartcard reader; and
- means for enabling or disabling the decryption of said signals in dependence

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upon the comparison.

41. A receiver/decoder according to Claim 40 wherein said enabling means is arranged to enable or disable said smartcard.

42. A receiver/decoder according to Claim 41, wherein said processor is arranged to enable said smartcard in response to a handshake routine between the receiver/decoder and smartcard.

43. A receiver/decoder according to any of Claims 40 to 42, said receiver/decoder being arranged to receive and decrypt broadcast video and/or audio signals.

44. A smartcard for use in a receiver/decoder according to any of Claims 40 to 43, said smartcard including a memory containing a list of IDs of respective receiver/decoders with which it may operate and indications as to whether the smartcard may operate with each of said listed receiver/decoders

45. A combination of a receiver/decoder according to any of Claims 40 to 43 and a smartcard according to Claim 44, said receiver/decoder further comprising means for reading the ID of each receiver/decoder listed in the memory of said smartcard and the indication associated therewith to determine whether the smartcard may be used with the receiver/decoder.

46. A smartcard for use with a receiver of encrypted broadcast signals, the smartcard comprising

a microprocessor for enabling or controlling decryption of said signals; and  
a memory coupled to said microprocessor;

said microprocessor being adapted to enable or control the individual decryption of a plurality of such signals from respective broadcast suppliers of such signals by means of respective zones in said memory, said zones each being arranged to store decryption data associated with a respective one of said broadcast suppliers, said decryption data including a priority level assigned to the smartcard by the

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respective broadcast supplier and enabling the decryption of signals associated with that priority level broadcast by that broadcast supplier .

47. A smartcard according to Claim 45, wherein said priority level is assigned to the smartcard by means of a control signal broadcast by the broadcast supplier.

5 48. Apparatus for broadcasting encrypted broadcast signals to receiver/decoders, said receiver/decoders having assigned thereto a respective priority level, the apparatus comprising:

10 means for generating control signals for controlling or enabling the decryption of said broadcast signals, the control signals each having an address portion for selectively enabling decryption by a receiver/decoder having a corresponding address; and

means for addressing receiver/decoders with said control signals selectively according to their respective priority levels.

15 49. Apparatus according to Claim 48, further comprising means for generating a first set of control signals associated with a respective broadcast supplier of broadcast signals and a second set of control signals associated with respective programs, the control signals in the second set having a switching portion arranged to gate decryption by said receiver/decoders, the control signals in said second set having said address portion.

20 50. Apparatus according to Claim 48 or 49, said apparatus being arranged to black out decryption of a selected program in a selected geographical location.

51. A smartcard substantially as herein described with reference to the accompanying drawings.

25 52. A receiver/decoder substantially as described hereinabove with reference to Figures 1 and 2 of the accompanying drawings.



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53. Apparatus for broadcasting encrypted broadcast signals to receiver/decoders substantially as herein described with reference to Figures 1 and 2 of the accompanying drawings.

54. A method of broadcasting encrypted signals to receiver/decoders substantially  
5 as herein described with reference to Figures 1 and 2 of the accompanying drawings.